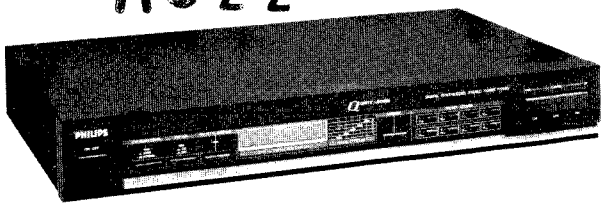
Service
Service
Service

AS22



Service Manual

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(GB)
Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.

(NL)
Veiligheidsbepalingen vereisen, dat het apparaat in zijn oorspronkelijke toestand wordt teruggebracht en dat onderdelen, identiek aan de gespecificeerde worden toegepast.

(D)
Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Originalzustand des Geräts darf nicht verändert werden für Reparaturen sind Original-Ersatzteile zu verwenden.

(I)
Le norme di sicurezza esigono che l'apparecchio venga rimesso nelle condizioni orignali e che siano utilizzati pezzi di ricambiago identici a quelli sepecificati.

(F)
Les normes de sécurité exigent que l'appareil soit remis à l'état d'orgine et que soient utilisées les pièces de rechange identiques à celles spécifiées.

DocumentationTechnique Service Dokumentation Documentazione di Servizio Huolte-Ohje Manual de Servicio Manual de Serviçio

PHILIPS

"Pour votre sécurité, ces documents doivent être utilisés par des spécialistes agréés, seuls habilités à réparer votre appareil en panne".

Subject to modification
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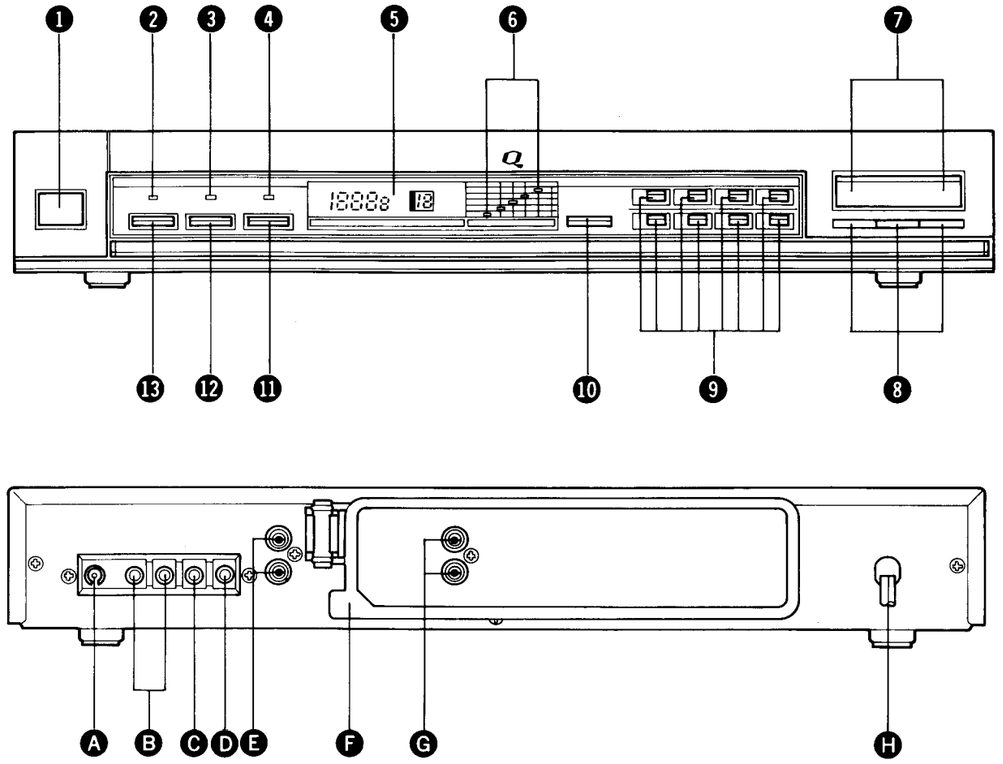
CS 3 389

SPECIFICATION		Nominal value	Typical value
General			
Mains voltage		: 220 – 240V ~	: 220 – 240V
Mains frequency		: 50 – 60 Hz	: 50 – 60 Hz
Power consumption		: 13W max	: 13W max
Dimensions (WxHxD)		: 420 x 60 x 260 mm	: 420 x 60/66 x 260 mm
Weight		: 3.0 kg	: 3.0 kg approx.
Tuner: FM section			
Tuning range		: 87.5 MHz to 108.0 MHz	: 87.5 MHz to 108.0 MHz
Aerial inputs		: 75Ω coaxial	: 75Ω coaxial
		: 300Ω symmetrical	: 300Ω symmetrical
Sensitivity	mono	: 4.0 µV 3% Distortion (40 kHz dev.)	: 1.3 µV 26 dB S/N (75 kHz dev.)
Selectivity		: 50 dB at ±300 kHz bandwidth	: 60 dB at ±300 kHz bandwidth
Frequency response	30 Hz – 15 kHz	: +1.0, –3.0 dB	: +0.5, –2.0 dB
Suppression	IF-AM	: 70 dB – 45 dB	: 80 dB – 55 dB
	pilot tone	: 27 dB	: 32 dB
	image frequency	: 65 dB	: 75 dB
Channel separation		: 38 dB 1 kHz	: 45 dB 1 kHz
Distortion T.H.D	mono	: 0.4%	: 0.2%
	stereo	: 1.0%	: 0.5%
Signal/noise ratio	mono	: 71 dB	: 76 dB
	stereo	: 63 dB	: 68 dB
Autom-stop threshold (Muting) normal/high		: 8 – 18/20 – 43 µV	: 12.5 µV
Output		: 350 – 700 mV ⩽ 3.3 kΩ	: 1000 mV
Tuner: AM section			
Wave ranges	MW	: 531 kHz to 1602 kHz	: 531 kHz to 1602 kHz (585–187m)
	LW	: 153 kHz to 281 kHz	: 153 kHz to 281 kHz (1960–1067m)
Sensitivity	MW	: 30 µV 10% Distortion	: 30 µV 10% Distortion
	LW	: 300 µV 10% Distortion	: 200 µV 26 dB S/N
Selectivity	(Loop antenna)	: 20 dB at ±9 kHz bandwidth	: 30 dB at ±9 kHz bandwidth
Suppression	IF (Loop antenna)	: 50 dB	: 60 dB
	image frequency (Loop antenna)	: 35 dB	: 35 dB
Output	(Loop antenna)	: 200 – 400 mV ⩽ 3.3 kΩ	: 300 mV
Tuner: Digital section			
Tuning steps	FM/MW/LW	: 50 kHz/9 kHz/1 kHz	: 50 kHz/9 kHz/1 kHz
Presets	FM/MW+LW	: 16/8 random sequential	: 16/8 random sequential

Caution ⚡ 220V/240V

Removal of upper cabinet and recordplayer exposes the protruding current-carrying parts of mains switch and mains transformer, therefore extreme care should be taken when the apparatus is connected to the mains.



CONNECTIONS AND CONTROLS

1	Mains switch	SU01	A	FM antenna terminal 75Ω	JC01
2	FM scan level indicator	DT01	B	FM antenna terminal 300Ω	
3	FM-NR indicator	DT02	C	Ground	
4	FM auto stereo indicator	DT03	D	AM antenna terminal	
5	Frequency display	V501	E	Output	JC02
6	Signal strength indicator	DX01~DX05	F	Loop antenna	L051
7	Tuning up/down switch	SY01, SY02	G	Remote control bus	JC04
8	Function switch	SY03~SY05	H	Mains cord	W001
9	Preset station switch	SX01~SX08			
10	Memory switch	SX09			
11	FM auto stereo switch	ST03			
12	FM-NR switch	ST02			
13	FM scan level switch	ST01			

ADJUSTMENTS

- Inner adjustment of the FM front end pack (A101) of this unit is difficult. (IF, RF, OSC)
- Inductances of the MW OSC coil (LA02) and LW OSC coil (LA04) are preset. Therefore, please do not turn the cores of these coils.

FM-Distortion

SK... WAVE RANGE SWITCH	SIGNAL	TO	DISPLAY TUNE IN	DETUNE	ADJUST	OSCILLOSCOPE	INDICATOR
FM SY05	98 MHz Mod. 1 kHz Δf 40 kHz (Mono) Output 1 mV	JC01			L201 (Brown)		J201 ±0 mV
					L201 (White)		JC02 Distortion Min.
	98 MHz Mod. 1 kHz Δf L+R 40 kHz Pilot 6 kHz Output 1 mV				A101-L8 L201		

Stereo Separation

FM SY05	98 MHz Mod. 1 kHz Δf L+R 40 kHz Pilot 6 kHz Output 1 mV	JC01			R307		JC02 Separation Max.

Muting Level

FM SY05 FM auto stereo switch Auto ST03 (Auto LED ON) FM scan level switch Normal ST01	98 MHz Mod. 1 kHz Δf 40 kHz Output 12.5 μV	JC01			R219		JC02 [1]
FM SY05 FM auto stereo switch Auto ST03 (Auto LED ON) FM scan level switch High ST01	98 MHz Mod. 1 kHz Δf 40 kHz Output 30.0 μV	JC01			R228		JC02 [2]

Signal Strength

FM SY05 FM scan level switch ST01 High/Normal	98 MHz Mod. 1 kHz Δf 40 kHz	JC01					DX03 [3]
					R231		DX03 [4]

AM-IF

AM-RF

AM Aut

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[2] By
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[3] Set
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ADJUST

end pack (A101) of

LA02) and LW OSC
ease do not turn the

O	DISPLAY TUNE IN	DETUNE	ADJUST	OSCILLOSCOPE	INDICATOR
			L201 (Brown)		J201 ±0 mV
01			L201 (White)		JC02 Distortion Min.
			A101-L8 L201		
01			R307		JC02 Separation Max.
01			R219		JC02 [1]
01			R228		JC02 [2]
01					DX03 [3]
			R231		DX03 [4]

AM-IF

MW SY04	999 kHz Mod. 400 Hz 30% Low Output	L051			FA01		JC02 Output Max.

AM-RF

MW SY04	603 kHz	L051			LA01		JC02 Output Max.
	1404 kHz				CA01		
LW SY03	173 kHz	L051			LA03		JC02 Output Max.
	272 kHz				CA08		

AM Auto Stop

MW SY04	999 kHz Mod. 400 Hz 30% Output 500 μV/m	L051			RA13		JC02 [5]

[1] By turning R219, clear once the output wave form of JC02, and then adjust it by turning a little R219 so that the wave form comes out again.

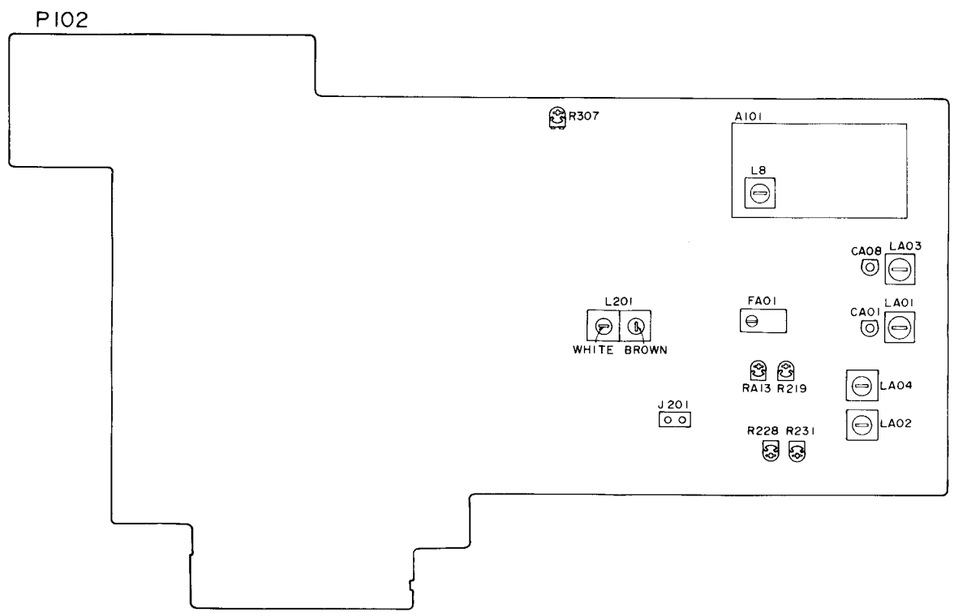
[2] By turning R228, clear once the output wave form of JC02, and then adjust it by turning a little R228 so that the wave form comes out again.

[3] Set the FM scan level switch to "High" (the Scan level indicator lights up). Adjust the signal generator output level so that the third indicator (DX03) of the signal strength lights up.

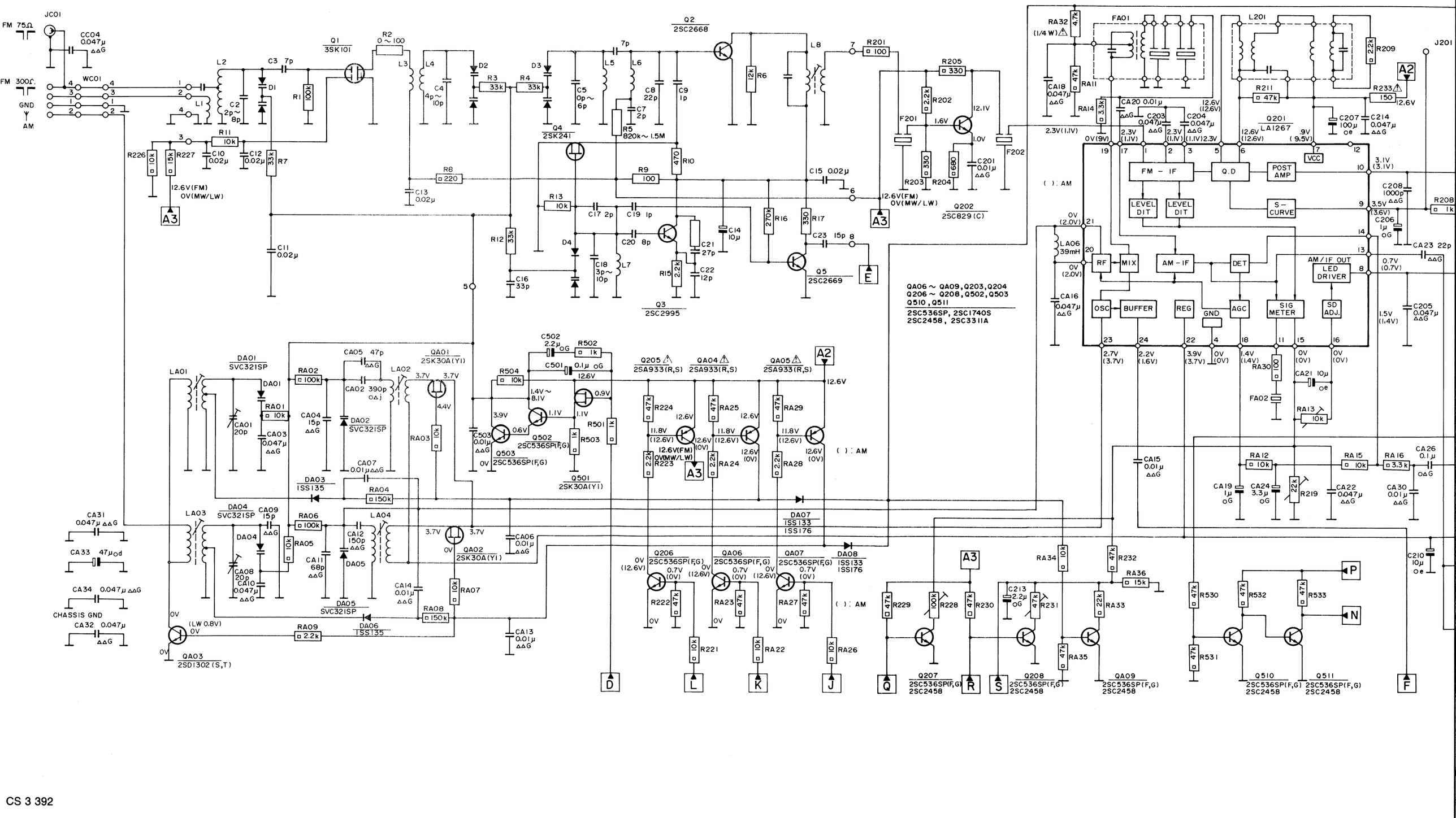
[4] Set the FM scan level switch to "Normal" (the Scan level indicator goes off). Adjust R231 so that the DX03 lights up.

[5] Set RA13 at the point in which "TUNED" of display (V501) starts lighting up.
The adjustment of AM Auto Stop should be carried out after adjusting FM Muting Level.

ADJUSTMENTS LOCATION



R	R226 R227 R11 R7 R1 R2 R8 R3 R12 R4 R13 R5 R9 R10 R15 R6 R16 R17 R201 R202 ~ R205 RA32 RA11 RA14 R211 R209 R233 R208	
	RA01 RA05 RA02 RA06 RA09 RA04 RA03 RA08 RA07 R504 R503 R502 R501 R224 R223 R222 RA25 R221 RA24 RA23 RA29 RA22 RA28 RA26 RA27 R228 ~ R230 R231 R33 ~ R36 R232 R530 ~ R533 RA12 RA30 R219 RA13 RA15 RA16	
C	CC04 C10 C2 C12 C11 C3 CA12 CA07 C13 C4 C16 C5 C17 C18 C20 C19 C7 C8 C9 C22 C14 C21 C15 C23 C201 CA18 CA16 CA20 C203 C204 C207 C214 C206 C208 CA23	
	CA31 ~ CA34 CA08 CA01 CA10 CA03 CA09 CA04 CA11 CA05 CA02 CA14 C503 CA06 CA13 C502 C501 C213 CA15 CA19 CA24 CA21 CA22 C210 CA30 CA26	
Q - D	QA03 DA04 DA01 DI DA03 DA05 DA02 Q1 DA06 QA01 QA02 D2 Q503 Q502 Q501 D3 Q4 D4 Q205 Q3 Q206 QA04 Q2 QA06 QA05 DA07 QA07 DA08 Q5 Q207 Q202 Q208 QA09 Q201 Q510 Q511	
L - X - F	LA01 LA03 L1 L2 LA04 LA02 L3 L4 L5 L7 L6 L8 F201 F202 LA06 FA01 L201 FA02	

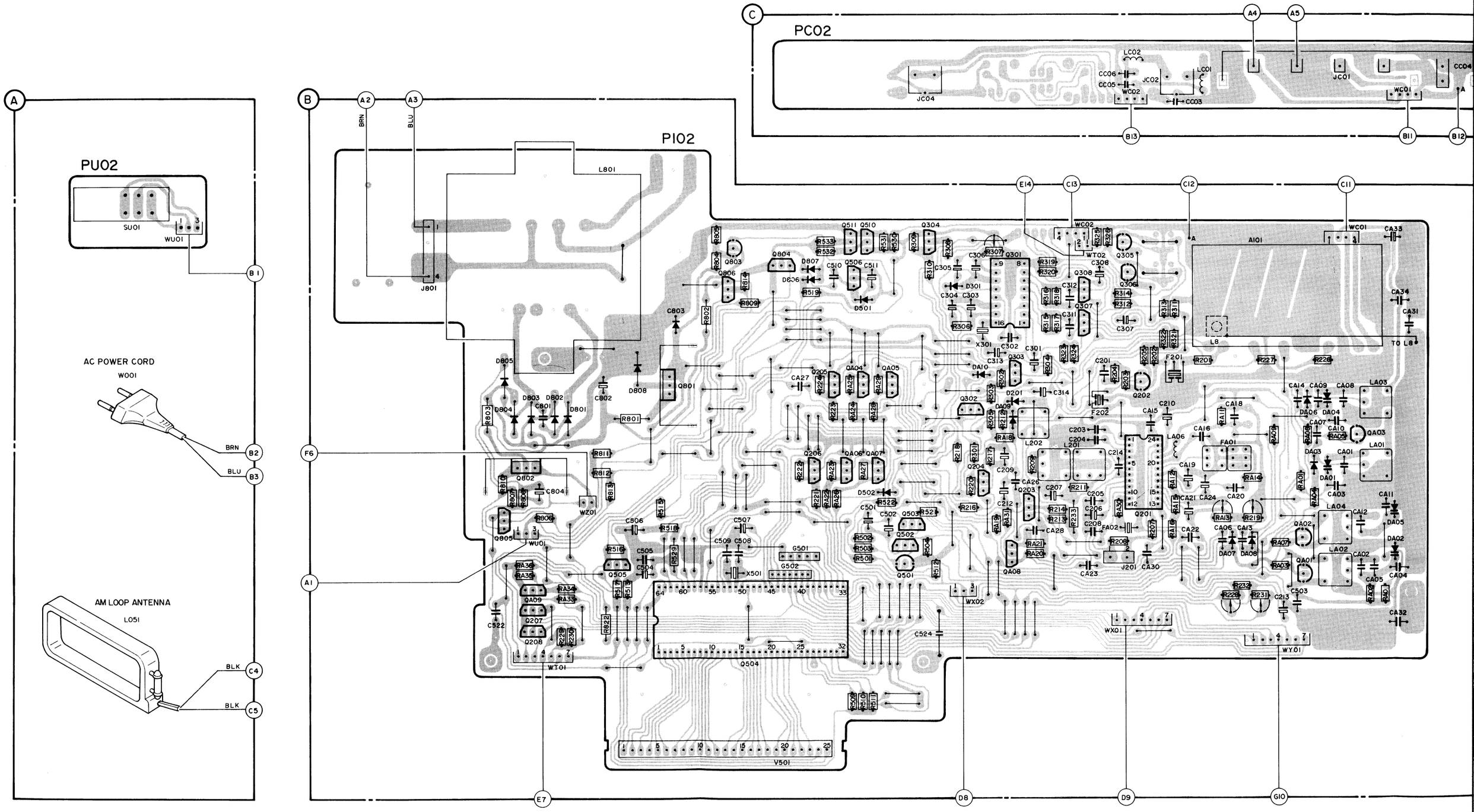


SCHEMATIC DIAGRAM

| | | |

WIRING DIAGRAM

R – G	R803 R810 R806∿R808 R811∿R813 R801 R802 R804 R805 R814 R809 R519 R530∿R533 R501∿ R504 R306∿R310 R301∿R305 R212 R220 RA31 R315 R320 R321∿ R326 R311∿R314 R201∿ R205 R227 R226
	RA33∿RA36 R229 R230 R822 R513 R515∿R518 R529 G502 G501 R221∿ R224 RA22∿RA29 R509∿ R512 R522 R521 R216∿R218 RA18∿RA21 R214 R213 R211 RA30 R207∿ R209 R228 R231∿R233 R219 RAII∿RAI6 RA01∿ RA09
C	C801 C802 C803 CA27 C510 C511 C301 C306 C311∿C314 C308 C307 CAI5 C210 C214 CA24 CAI8 CC04
	C522 C804 C504∿ C509 C501 C502 C524 C212 C203∿C209 CA26 CA28 CA23 CA30 C201∿ C208 CC05 CC06 CC03 CA16∿CA22 C213 C503 CA01∿ CAI4 CA31∿CA34
Q – D – V	D801∿ D805 Q805 Q802 QA09 Q207 Q208 Q505 D808 Q801 Q803 Q806 Q504 Q804 D806 D807 Q205 Q206 Q511 Q510 Q506 D501 QA04 QA08 D502 D301 Q501∿ Q503 DAI0 Q204 Q301∿Q303 D201 DA09 Q305 Q308 Q201 Q202 DA01∿ DA08 QA01∿ QA03
L – S – F – X	LO51 SU01 L801 X501 X301 L202 L202 F202 LC02FA02 F201 LA06 FA01 LC01 LA01∿ LA06

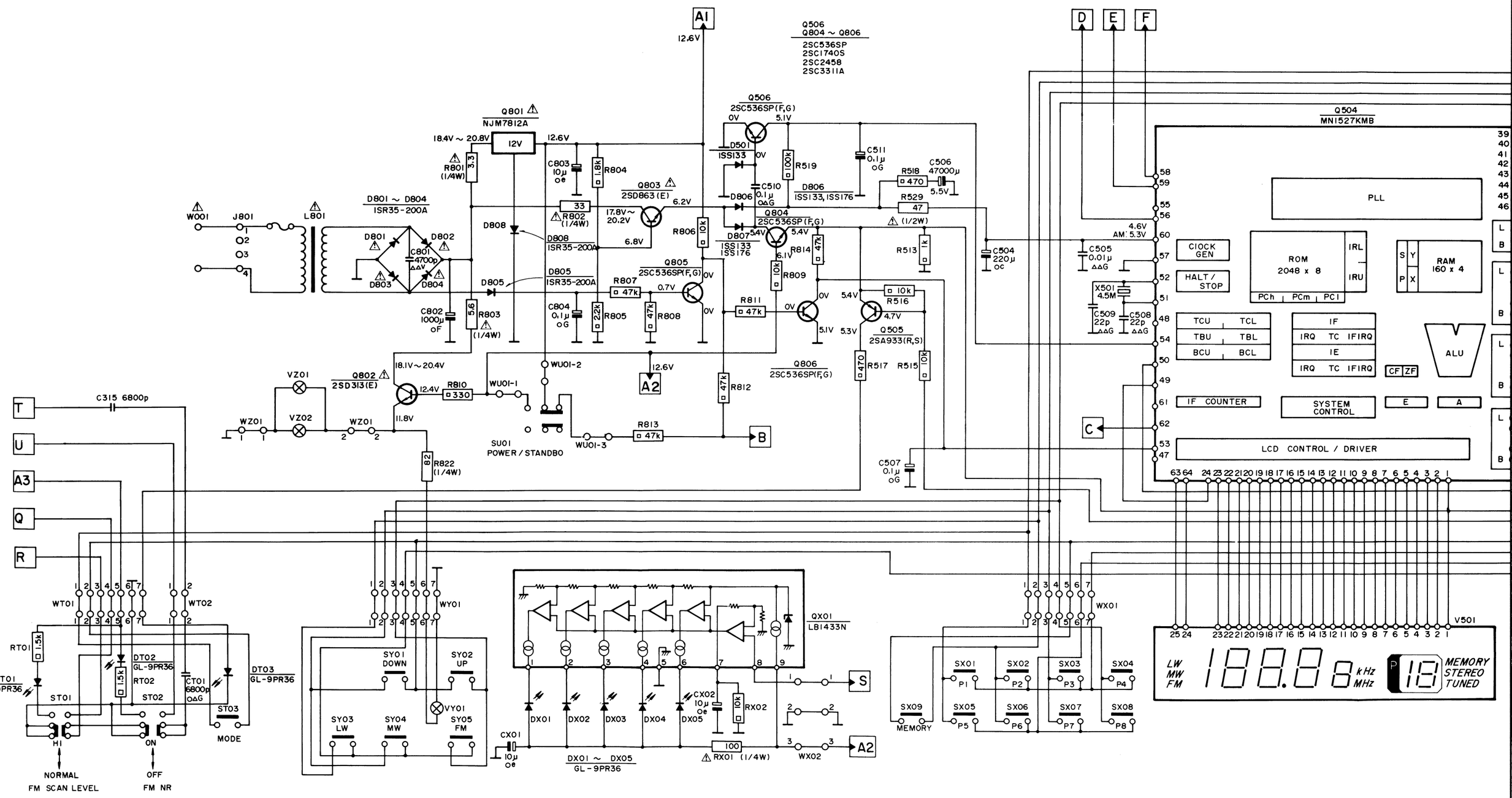


WIRING DIAGRAM

| | | |

SCHEMATIC DIAGRAM

R	R810 R801 R803 R802 R804 R805 R807 R808 R806 R812 R811 R809 R519 R814 R518 R529 R513 RT01 RT02 R822 RX01 R813 RX02 R517 R516 R515
C – G	C801 C802 C803 C804 C510 C511 C506 C504 C509 C508 C315 CT01 CX01 CX02 C507 C505
Q – D	DT01 DT02 DT03 D801 ~ D804 Q802 D805 D808 DX01 ~ DX05 Q803 QX01 Q805 D806 D807 D501 Q506 Q804 Q806 Q505 Q504
L-S-X-V	ST01 ST02 ST03 L801 VZ01 VZ02 SY01 ~ SY05 VY01 SU01 SX09 SX01 ~ SX08 X501 V501



SCHEMATIC DIAGRAM

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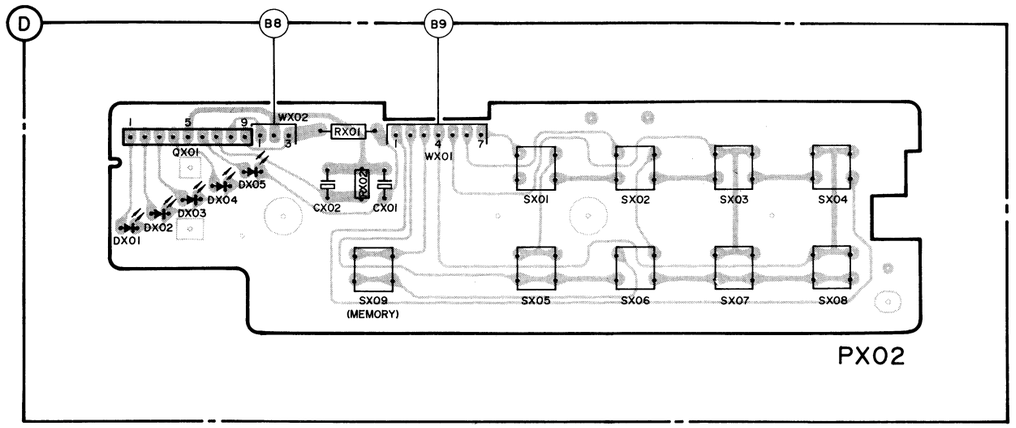
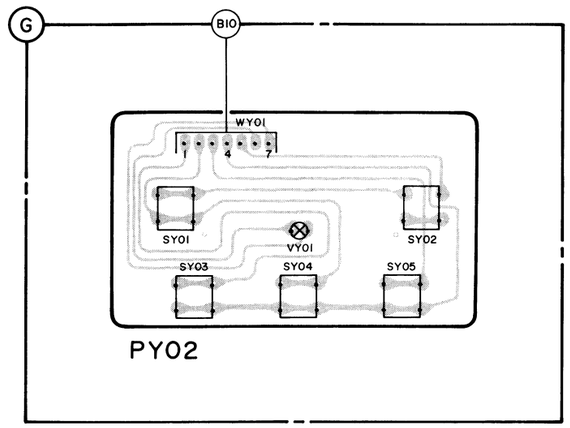
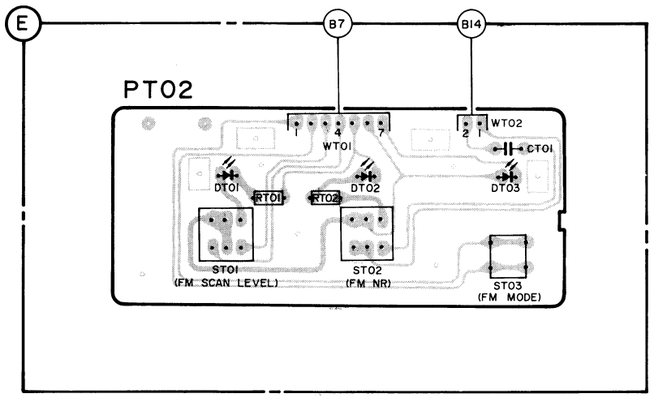
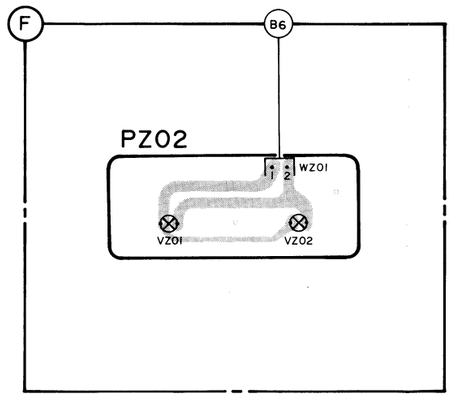
WIRING DIAGRAM

R	RX01
	RT01 RT02 RX02
C	CX02 CX01
	CT01
Q—D—V	DX01~DX05 QX01 DT01~DT03 VZ01 VZ02 VY01
S	ST01~ST03 SX09 SX01~SX08 SY01~SY05







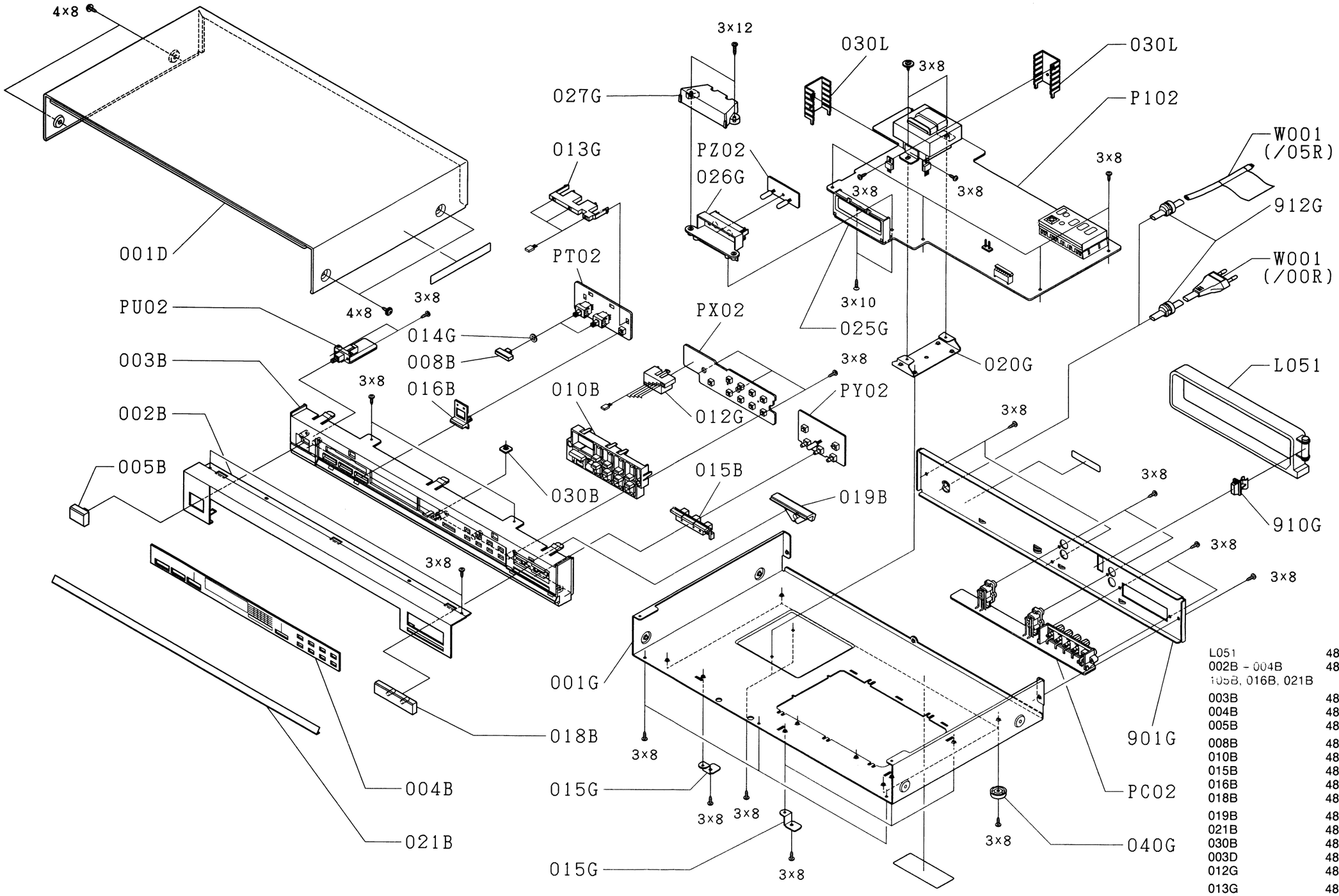


Carbon film 0.125 W or 0.2 W	70°C	5%	
Carbon film 0.25 W or 0.33 W	70°C	5%	
Metal film 0.25 W or 0.33 W	70°C	5%	
Carbon film 0.5 W	70°C	5%	
Carbon film 0.67 W	70°C	5%	
Carbon film 1 W or 1.15 W	70°C	5%	
Ⓒ Chip component			

Ceramic plate Tuning ⩽ 120 pF NP.0	2%	
Ceramic plate Others	−20/+80%	
Polyester flat foil	10%	
Metalized polyester flat film	10%	
Polyester flat foil small size (Mylar)	10%	
Polysterene film/foil	1%	
Tubular ceramic		
Miniature single		
Subminiature tantalum	± 20%	

*a	2.5 V
b	3.15 V or 4 V
c	6.3 V
d	10 V
e	16 V
f	25 V
g	40 V
h	63 V
j	100 V
l	125 V
m	150 V
n	160 V
q	200 V
r	250 V
s	300 V
t	350 V
u	400 V
v	500 V
w	630 V
x	1000 V
A	1.6 V
B	6 V
C	12 V
D	15 V
E	20 V
F	35 V
G	50 V
H	75 V
I	80 V

EXPLODED VIEW



L051	4822 157 52069
002B - 004B 105B, 016B, 021B	4822 426 51106
003B	4822 426 51107
004B	4822 454 11874
005B	4822 410 25074
008B	4822 410 25075
010B	4822 410 25322
015B	4822 410 25324
016B	4822 410 25325
018B	4822 410 25323
019B	4822 381 10805
021B	4822 426 51041
030B	4822 505 10806
003D	4822 502 12501
012G	4822 256 91072
013G	4822 256 91073
025G	4822 256 90974
026G	4822 380 20211
027G	4822 450 60736
040G	4822 462 40971
910G	4822 256 90548
912G	4822 532 51314

List of electrical parts

CA01	Trimming cap.	20 pF		4822 125 60104
CA02	Cap. film	390 pF	100 V	4822 121 42466
CA08	Trimming cap.	20 pF		4822 125 60104
C212	Elect-cap	0.1 µF	50 V	4822 124 21596
C501	Elect-cap	0.1 µF	50 V	4822 124 21596
C506	El. cap	47000 µF	5.5 V	4822 124 41265
C507	Elect-cap	0.1 µF	50 V	4822 124 21596
C511	Elect-cap	0.1 µF	50 V	4822 124 21596
C801	Cap. cer.	4700 pF	500 V	4822 122 32827
C804	Elect-cap	0.1 µF	50 V	4822 124 21596
G501	Cap-comp.	0.01 µF		4822 111 80328

G502	Res. comp.	47 k		4822 111 91204
RA13	Trimming res.	10 k		4822 100 11041
RA32	Res. safety	100E	1/4 W	4822 111 30815
RX01	Res. safety	100E	1/4 W	4822 111 30815
R219	Trimming res.	22 k		4822 100 20545
R228	Trimming res.	100 k		4822 100 20552
R231	Trimming res.	47 k		4822 100 11042
R233	Res. safety	100E	1/4 W	4822 111 30802
R307	Trimming res.	47 k		4822 100 11042
R529	Resistor	47E	1/4 W	4822 116 53718
R801	Fuse res.	3.3E	1/4 W	4822 116 60446
R802	Fuse res.	33E	1/4 W	4822 116 60293
R803	Fuse res.	5.6E	1/4 W	4822 116 60415
R822	Fuse res.	82E	1/4 W	4822 116 60419

2SK30A Y1		4822 130 42121
2SA933 R, S		4822 130 42433
2SC536SP F, G		4822 130 42483
2SD1302 S, T		4822 130 42125
2SC829 C		4822 130 42135
2SD313 E		4822 130 41768
2SD863 E		4822 130 43377

LA1267		4822 209 70259
LA3410		4822 209 70261
LB1433N		4822 209 70685
MN1527KMA		4822 209 70258
NJM7812A		4822 209 70084

SVC321SP		4822 130 31542
1SR35-200A		4822 130 32816
1SS133		4822 130 33305
1SS135		4822 130 33697
GL-9PR26		4822 130 32918

FA01	Filter SFL450J3	4822 242 71509
FA02	Filter BFU450C	4822 242 71217
LA01	MW ant coil	4822 157 52328
LA02	MW osc coil	4822 157 52716
LA03	LW ant coil	4822 157 52714
LA04	LW osc coil	4822 157 52717
LA06	Choke coil 39 MH	4822 152 20595
F201	Filter SFE10.7MS3-A	4822 242 71135
F202	Filter SFE10.7MS3-A	4822 242 71135
L201	I.F.T FM det coil	4822 157 52715
L202	M.P.X. coil	4822 156 10794
L801	Transformer	4822 146 21195
X301	CSB456F11 456 kHz	4822 242 71511
X501	Crystal 4.5 MHz	4822 242 71407

Miscellaneous

A101	V.H.F. tun. FE407-G23	4822 210 10267
JC01	Din ant terminal	4822 267 10133
JC02	Tun. output terminal	4822 267 30741
JC03	Remote cont. term.	4822 266 30274
L051	AM loop ant	4822 157 52069
ST01	Push switch FM scan level	4822 276 11944
ST02	Push switch FM NR.	4822 276 11944
ST03	Push switch FM mode	4822 276 11559
SU01	Push switch power/stand by	4822 276 11682
SX01	Push switch preset 1	4822 276 11559
SX02	Push switch preset 2	4822 276 11559
SX03	Push switch preset 3	4822 276 11559
SX04	Push switch preset 4	4822 276 11559
SX05	Push switch preset 5	4822 276 11559
SX06	Push switch preset 6	4822 276 11559
SX07	Push switch preset 7	4822 276 11559
SX08	Push switch preset 8	4822 276 11559
SX09	Push switch memory	4822 276 11559
SY01	Push switch tun. down	4822 276 11567
SY02	Push switch tun. up	4822 276 11567
SY03	Push switch LW	4822 276 11657
SY04	Push switch MW	4822 276 11657
SY05	Push switch FM	4822 276 11657
VY01	Lamp 8 V 50 mA	4822 134 40751
VZ01	Lamp 12 V 0.1A	4822 134 40745
VZ02	Lamp 12 V 0.1A	4822 134 40745
V501	LCA7B8031A	4822 130 90351